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10 March 1960

MEMORANDUM FOR : Chief, Technical Analysis Staff
SUBJECT : Fuel Comparison

1. An extension of the basic fuel parameters does not indicate that the PMA 523 fuel is significantly better than present fuels to warrant a flight test program and/or a change in the operational fuel. The rough comparison between PMA 523 and LF-2 does yield a greater range capability of 250 nautical miles in the clean configuration and an increase of 270 miles when utilizing the slipper tanks. The above figures are for an operational mission rather than a ferry mission.
2. The fuel presently being used in the U-2C is MILF-25524. The specific gravity of the fuel varies from 0.778 to 0.805. If some weighted average is used for comparative evaluation, the PMA 523 fuel yields a range increase of only 80 miles clean and 90 miles with slipper tanks. If the pilot handbook fuel specific is used, these added ranges decrease to 30 and 60 miles respectively. If the upper limit of the fuel specific is used, the PMA 523 is not as good as the MILF-25524. The difference between the Milpec fuel and the alternate fuel (LF-1) is not measurable on the slide rule.
3. Without a flight test program, no comparison can be made between the fuels airstart capabilities. It would require an extensive test program to determine if significant maintenance advantages would be realized by the more favorable luminosity number of PMA 523. Costs of the two fuels and manufacturing complexity comparisons are not known. Since the environment is radically different between the U-2C and the proposed A-12, there is no requirement to use the U-2C as a "test bed" in this circumstance.
4. Based on the above, it is recommended that no flight test program be initiated to test the PMA 523 fuel for possible U-2C use.

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